Procedures and Guidelines

DIRECTIVE NO. 303-PG-4520.2.1A	**APPROVED BY Signature:** Original signed by
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Responsible Office: 303/Assurance Management Office

Title: EVALUATION OF SOFTWARE/FIRMWARE DELIVERY DATA PACKAGES

P.1   PURPOSE

This procedure provides guidelines for the Systems Assurance Manager (SAM) to accomplish the review of the Software/Firmware Delivery Data Package (SDDP) prior to delivery to GSFC.

P.2   REFERENCE

a. GPG 4520.2, Incoming Inspection and Test

b. GPG 5340.2, Control of Nonconforming Product

c. 300-PG-7120.2.2, Mission Assurance Guidelines (MAG) for Tailoring to the Needs of GSFC Projects

P.3   SCOPE

This procedure is applicable to the SAM's review of deliverable software and documentation. The software may represent a full delivery or a partial delivery (or build) within a system or sub-system. For convenience, software refers to software and firmware throughout this document.

P.4   DEFINITIONS

a. Deliverable Product – Software/firmware and documentation representing a full or partial delivery (or build) within a system or sub-system.

b. Product Design Lead (PDL) – The manager or leader with overall responsibility for managing the design activity, managing the technical and organizational interfaces identified during design planning, and where required, forming and leading the Product Design Team (PDT). The term refers to flight project managers, mission managers, instrument managers, subsystem technical managers, integrated product development team leaders, lead engineers, etc.

c. Software/Firmware Delivery Data Package (SDDP) – the set of software/firmware and accompanying documentation that constitutes the delivery of a product to GSFC.

d. Systems Assurance Manager (SAM) – Code 300 personnel responsible for supporting the PDL in the coordination of the definition and implementation of a Project Systems Safety and Mission Assurance Program (SSMAP).

e. Technical Officer (TO) – A civil servant who is responsible for oversight of technical and administrative details of a contract.

P.5   CANCELLATION

303-PG-4520.2.1, Evaluation of Software/Firmware Delivery Data Packages

P.6   RECORDS

None

P.7   IMPLEMENTATION

7.1   General

This procedure is applicable to all contracts and technical areas within the responsibility of the Project SAM.

Exhibit A, which is a copy of the software delivery package DID in 300-PG-7120.2.2, contains a list of items that could be included in the SDDP. Exhibit B contains a sample checklist for the SAM to use in conjunction with this procedure.

7.2   Software Delivery

7.2.1   Pre-Delivery Review

Before final delivery of the SDDP, the SAM should review a preliminary SDDP to ensure that the product is in accordance with contract schedule. All applicable documentation should be used in performing this review, including contract/task requirements and applicable NASA standards. If the delivery is an update to a previous delivery, the SAM should consider requesting a list identifying those items that have been added, deleted, or modified.

The SAM should meet with the developer to discuss any discrepancies identified in the preliminary SDDP and to evaluate its readiness for delivery. The SAM, Product Design Lead (PDL), developer, and, if applicable, the operations and maintenance contractors should participate in this meeting. The SAM should lead this meeting and ensure that all action items, corrective actions and comment resolutions are recorded.

7.2.2   Formal Delivery Review

Following the resolution of all discrepancies identified in the pre-delivery review and prior to acceptance by GSFC, the formal SDDP should be submitted to the SAM.

A delivery letter signed by the appropriate PDL should accompany the formal SDDP. This letter should define the contents of the SDDP and note the status of all pre-delivery action items. The SAM should verify the SDDP contains all items specified in the delivery letter and that the SDDP is in accordance with contract requirements.

The SAM should verify that all pre-delivery action items are closed and that corrective actions have been taken, or are explained in the delivery letter.

7.2.3   Acceptance Recommendation

Once the SAM determines the formal SDDP is acceptable, the SAM should generate an official memo to the contract TO or PDL recommending acceptance of the SDDP. This memo should describe the status of the software and documentation being delivered to GSFC. This memo should also identify any outstanding problems or problems found during acceptance testing by GSFC.

If the SAM determines the formal SDDP is unacceptable, the SAM should generate the following:

a.   GSFC Nonconformance Report(s) per GPG 5340.2, citing reason(s) for software return to developer or vendor;

b.   An official memo of rejection to the developer, for signature by the TO or PDL, referencing the NCR number.

Software/Firmware Delivery Data Package (SDDP)

1.0   General

Sections 3.0 through 5.0 provide a list of items that may be included in the SDDP. The SDDP DID found in the section 2 reference is used as the model. The list is a guideline and should not be considered to be exhaustive.

2.0   Reference

300-PG-7120.2.2, Mission Assurance Guidelines (MAG) for Tailoring to the Needs of GSFC Projects

3.0   Delivery Letter

Software Delivery Letter, one page in length, defines briefly what is being delivered, contains in its attachments the details of the delivery, and identifies a point of contact for resolution of questions/ misunderstandings/ problems involving the delivery. Attachments that support the delivery letter are described in items (a) through (k) below:

a.   Description of Delivery Contents – Identifies the delivery in terms of subsystem, release number(s), configuration ID(s), media type(s) (tapes, diskettes, other) and number of copies.

b.   Build Instructions - Provides instructions to be used in building the delivered software, including the version number of system or vendor-supplied software required to build the software. The supplier should provide evidence that these instructions have been executed prior to delivery and that the software has been built successfully using them.

c.   Special Operating Instructions – Indicates any special instructions that test or operations personnel need to know in using the software. These may include, for example, the use of special simulators, changes to operational procedures, the addition of new files, file format changes, operating constraints/limitations, workaround resolutions to documented problems, operational software version numbers, and associated database version numbers.

d.   List of Resolved Anomaly Reports and Change Requests.

e.   List of Unresolved Anomaly Reports and Change Requests.

f.   Copy of Resolved Anomaly Reports and Change Requests.

g.   Copy of Unresolved Anomaly Reports and Change Requests.

Exhibit A

h. Matrix of requirements addressed by this release (may be done by reference to mapping of requirements identified in requirements specification document).

i. Release History Summary Matrix.

j. Inventory of the Delivered Media – There should be evidence that the inventory came from the media themselves e.g. file directories for each release.

k. List of Changes to Documentation associated with this release e.g. users guide procedures.

4.0   Software Delivery Media

The second of the three items of the delivery package is the delivered software. The software on the media is delivered in accordance with the contract schedule. The media can be magnetic disk, magnetic tape, CD-ROM or electronic file transfer (FTP). Number of copies of the media is in accordance with the contract schedule.

5.0   Accompanying Documentation

The third and final item included in the software package is the documentation that describes the delivered software. Copies of the following should be included:

a. Users Guide.

b. Software Description consisting of the following:
    1) Requirements Documentation or draft change pages.
    2) Design Documentation or draft change pages.

c. Data Definitions.

d. Test Plans, Procedures and Results as appropriate.

Exhibit A (continued)SDDP Contents Checklist

SDDP Contents Checklist

CONTRACT/TASK ASSIGNMENT#:_____   DATE:_____   PAGE:__OF__

CONTRACT DESCRIPTION:_____

COMPONENT DESCRIPTION	Received		Identification Number	Comments	Reviewed By
	Yes	No			
Software Delivery Letter					
list of attachments					
(a) Description of					
delivery contents					
(b) Build Instructions					
(c)Evidence that build					
instructions were					
used to build a copy					
of software.					
(d) List of resolved					
anomaly reports & CRs					
(e) List of unresolved					
anomaly reports & CRs					
(f) Copy of resolved					
anomaly reports & CRs					
(g) Copy of unresolved					
anomaly reports & CRs					
(h) Matrix of					
requirements					
addressed by this					
release					
(i) Release history					
summary matrix					
(j) Inventory of					
the delivered media					

Exhibit B

COMPONENT DESCRIPTION	Received		Identification Number	Comments	Reviewed By
	Yes	No			
(k) List of changes					
to documentation					
associated with this					
release; e.g. users					
guide procedures					
(l) Other					
Software Delivery Media					
received					
(tape,					
diskettes, optical					
media).					
Accompanying					
documentation.					
(a) Users guide.					
(b) Rqts. doc. or ch. pg.					
(c) Design doc. or ch. pg.					
(d) Data definition					
(e) Test plans/procs/rpt.					
(f) Other					

Exhibit B (continued)

CHANGE HISTORY LOG

Revision	Effective Date	Description of Changes
Baseline	10/19/98	
A	1/8/99	Replaced all 300-HDBK-8730.4.1 references with 300-PG-8730.4.2.
A	3/30/99	Minor Change to reformat PG per GPG 1410.1 requirements. Changed all 8730.4 references to 7120.2.